THE

TRAINING SCHOOL BULLETIN

MARCH AND APRIL 1919

My Dear Mr. Johnstone:

In fulfillment of my pledge offered last summer to the Sustenance Fund, I have much pleasure in enclosing a check for fifty dollars.

It has been great fun to accumulate this money. My own tiny personal income, depleted by war conditions and stretched to the utmost limit to meet the patriotic and charitable demands we have all striven to respond to as liberally as possible, would not stand any further strain. So this little contribution represents pennies and dimes and nickels gathered slowly in all sorts of ways. The difference in price between silk stockings and the lisle which served just as well was an occasional aid. A plague of house mice, together with barn rats, helped materially, because the bounties offered for their destruction was transferred from the house purse to the Training School mite box. A forty-cent luncheon on shopping days was a healthful substitute for one at a higher price. The sale of newspapers, rags, tin foil, old rubber and broken jewelry and silver, which are burdensome accumulations in a household, helped immensely; and the daily watchfulness to lose no opportunity, and the pleasure derived from small sacrifices, have brought the Training School even closer to my heart. I am telling these foolish little details just to give you a laugh.

If at any time some motoring Vineland friend of the School is passing through, I'd be glad to send by his aid some things too heavy to mail or carry—a lot of back numbers of St. Nicholas, a few football togs, a few books.

Heredity in Feeble Mindedness

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The purpose of this paper is to present the results obtained from the psychological examination of several members of families in which one or more had been reported to be defective in intelligence. Attempt was made to examine both parents, but this has not been possible in every family, since some of the parents had died and others were not accessible on account of distance or lack of address. In each family however, at least one child and one of the parents have been examined by the writer. Not all normal children have been examined. Approximately 50 per cent. have been recorded as normal on the reports of officials and teachers that the individuals in question were up to grade and doing well in the public schools. All persons, however, recorded as defective have been examined by the writer. Persons recorded as psychopathic have been passed upon by a physician or are known to be inmates of institutions for the insane.

The families here reported are the first fifty whom the writer has studied in the manner above described. They are unselected with the exception that six epileptic children with their respective families have been excluded from the study, on the ground that while the children were feeble-minded they nevertheless present a different problem on account of complications with epilepsy. If any factors have operated to select certain types of families they are not apparent and beyond the control of the writer. Families have been studied in the order in which the parents or officials have applied to the State for provision for a feeble-minded child or have presented themselves in the interest and welfare of such a feeble-minded child. It is recognized, however, that fifty families is not a sufficient number upon which to base far-reaching conclusions in regard to heredity. The number should be suggestive, nevertheless, and the results obtained of some value since in each family two or more of its members have been actually examined.

Psychological examination was made by the use of the Stanford Revision of the Binet-Simon measuring scale of general intelligence. In examining children the scale was used without modification, but in

the examination of adults certain conditions entered in which made it necessary to use the scale in a much abbreviated form. In case of doubt, however, concerning the mental status of the person being examined the entire scale was used and directions followed as prescribed.

The recorded results from the examination of 1,400 feeble-minded persons indicate that certain of the tests are more difficult for feeble-minded persons than for normal children of the same mental level. It has therefore, been assumed that these tests, difficult for the feeble-minded, would be the better tests for diagnostic purposes and that they would more readily indicate the mental status of the person tested. None of the adult persons examined graded lower than low moron and hence the scale is not given below the year VIII.

The following tests are the ones selected from the Stanford Revision and used in examining parents of defective children.

Year.	Test No.
VIII,	4. Similarities.
IX,	4. Making change.
X,	2. Absurdities.
	3. Drawing designs.
	4. Reproducing from memory the thot of a passage read.
XII,	1. Vocabulary.
	4. Dissected sentences.
	7. Interpretation of pictures.
XIV,	4. Problems of fact.
	5. Arithmetical Problems.
XVI,	3. Comparison of abstract terms.
	4. Problem of inclosed boxes.

Tabulations in table I represent the mental level of the father and mother, the number of offspring of the various mental levels, the mental status of a few of the grand parents, uncles and aunts of the children examined, and what has appeared to be the most probable cause for the feeble-mindedness of the children examined, and also the occupation of the father and the social status of the family.

TABLE I

Table showing mental status, social status, most probable cause of feeble-mindedness, and the occupation of the father in fifty families examined by the Binet-Simon Scale of Intelligence.

Family number	FAMILY: Father	FAMILY: Mother	FAMILY: Grandfather	FAMILY: Grandmother	TYPE OF OFFSPRING: Uncle	TYPE OF OFFSPRING: Aunt	TYPE OF OFFSPRING: Idiot	TYPE OF OFFSPRING: Imbecile	TYPE OF OFFSPRING: Moron	TYPE OF OFFSPRING: Dull-Normal	TYPE OF OFFSPRING: Normal	TYPE OF OFFSPRING: Psychopathic	MOST PROBABLE CAUSE: No. children dead	MOST PROBABLE CAUSE: F. M. Heredity	MOST PROBABLE CAUSE: Psychopathic Heredity	MOST PROBABLE CAUSE: Diseases	MOST PROBABLE CAUSE: Accident	MOST PROBABLE CAUSE: Unknown	Specific disease	Occupation of Father	Social status
1	d	N	---	---	---	---	1	---	---	---	2	---	---	---	---	---	x	---		Baker	Ave.
2	N	M	---	F	---	---	1	---	---	---	1	---	1	x	---	---	---	---	Poliomyelitis	Tailor	Ave.
3	N	N	---	---	---	---	1	---	---	---	1	---	2	---	---	x	---	---	Poliomyelitis	Carpenter	Ave.
4	N	N	---	---	---	---	1	---	---	---	3	---	1	---	---	x	---	---	Poliomyelitis	Contractor	Ave.
5	N	N	---	---	---	---	1	---	---	---	5	---	---	---	---	---	x	---	Pren'l inj.	Grocer	Ave.
6	N	N	---	---	---	---	1	---	---	---	2	---	---	---	---	---	---	x		Grocer	Ave.
7	N	N	---	---	---	---	1	---	---	---	8	---	---	---	---	x	---	---	Poliomyelitis	Laborer	Inf.
8	N	N	---	---	---	---	1	---	---	---	2	---	1	---	---	---	---	---		Contractor	Ave.
9	---	D	---	---	---	---	1	---	---	---	3	---	1	---	---	---	---	x		Farmer	Ave.
10	D	P	---	---	P	P	---	2	---	---	---	---	1	---	x	---	---	---		Laborer	Inf.
11	s	N	---	---	---	---	---	1	---	---	3	---	1	---	---	---	x	---		Actor	Ave.
12	---	D	F	---	---	---	---	2	---	---	---	---	---	x	---	---	---	---		Laborer	Inf.
13	---	D	---	---	---	P	---	1	---	---	3	---	---	x	---	---	---	---	Par., Cous.	Laborer	Inf.
14	D	d	---	---	---	---	---	1	---	---	4	---	---	---	---	---	---	x	Mongolian	Laborer	Ave.
15	---	D	---	---	---	P	---	1	---	1	2	---	---	x	---	---	---	---		Laborer	Inf.
16	D	D	---	---	---	P	---	1	---	---	1	---	1	---	x	---	---	---	Poliomyelitis	Carpenter	Ave.
17	---	D	P	---	---	---	---	1	---	---	---	---	---	---	x	---	---	---		Laborer	Inf.
18	D	M	---	---	---	---	---	2	2	---	1	---	---	x	---	---	---	---		Laborer	Inf.
19	s	M	---	---	---	F	---	2	---	---	---	---	---	x	---	---	---	---		Clerk	Ave.
20	P	D	---	---	P	P	---	1	---	---	4	---	---	---	x	---	---	---		Farmer	Ave.
21	---	M	---	---	---	F	---	1	---	---	---	---	1	x	---	---	---	---		Saloonkper	Inf.
22	N	N	---	---	---	---	---	1	---	---	2	---	---	---	---	---	x	---	Scarlet Fever	Painter	Ave.
23	D	---	---	---	---	---	---	1	---	1	---	---	---	---	---	---	---	x		Cobbler	Inf.
24	d	D	---	---	---	---	---	1	---	---	4	---	---	---	---	---	---	x		Farmer	Inf.
25	N	N	---	---	---	---	---	1	---	---	2	---	---	---	---	---	---	x		Notion Store	Ave.
26	N	M	---	---	F	---	---	2	1	---	---	---	7	x	---	---	---	---		Laborer	Inf.
27	D	M	---	---	---	---	---	3	1	---	---	---	1	x	---	---	---	---		Laborer	Inf.
28	D	N	---	---	---	---	---	---	1	1	2	---	4	---	---	---	---	x		Laborer	Inf.
29	N	N	---	---	---	---	---	---	1	---	1	---	---	---	---	x	---	---	Syphilis	Contractor	Sup.
30	s	M	---	---	---	---	---	---	2	---	---	---	---	x	---	---	---	---		Farmer	Inf.
31	d	N	---	---	---	---	---	---	1	---	6	---	3	---	---	x	---	---	Brain Fever	Farmer	Ave.
32	D	d	---	---	---	---	---	---	2	---	---	---	1	x	---	---	---	---		Peddler	Inf.
33	---	M	---	---	---	P	---	---	1	---	5	---	6	x	---	---	---	---		Laborer	Inf.
34	d	N	---	---	---	---	---	---	1	---	6	---	5	---	x	---	---	---	Pneu. at 5 yrs.	Laborer	Inf.
35	s	M	---	---	---	---	---	---	2	---	---	---	---	x	---	---	---	---		Laborer	Inf.
36	D	D	---	---	---	---	---	---	4	---	1	---	3	x	---	---	---	---		Laborer	Inf.
37	D	M	---	---	---	---	---	---	2	---	---	---	---	x	---	---	---	---		Laborer	Inf.
38	s	M	---	---	F	---	---	---	1	---	---	---	1	x	---	---	---	---		Laborer	Inf.
39	N	M	---	---	---	---	---	---	1	---	---	---	---	---	---	---	---	x	Parents Rel.	Laborer	Inf.
40	---	N	---	---	---	---	---	---	1	---	1	---	---	---	---	---	---	---	Rachitis	Sailor	Ave.
41	s	D	---	---	---	---	---	---	1	---	---	---	---	---	---	---	---	---	Undeveloped	Conductor	Inf.
42	D	M	---	---	---	---	---	---	3	---	---	---	2	x	---	---	---	---		Laborer	Inf.
43	P	M	---	---	---	---	---	---	1	---	---	---	---	x	---	---	---	---		Laborer	Inf.
44	P	P	---	---	---	---	---	3	1	---	---	---	3	---	x	---	---	---		Laborer	Inf.
45	---	P	---	---	---	---	---	---	1	---	---	1	4	---	x	---	---	---		Laborer	Inf.
46	D	M	---	---	---	---	---	---	2	---	---	---	3	x	---	---	---	---		Laborer	Inf.
47	s	M	---	---	---	---	---	---	2	---	---	---	---	x	---	---	---	---		Laborer	Inf.
48	P	P	---	---	---	F	---	---	1	---	1	---	1	---	x	---	---	---		Preacher	Ave.
49	---	P	---	---	P	P	---	---	1	1	---	1	2	---	x	---	---	---		Merchant	Ave.
50	D	D	---	---	---	P	---	---	2	---	---	---	3	x	---	---	---	---		Laborer	Inf.
Totals							9	25	42	5	77	2	56								

Legend: N, normal; D, dull-normal; M. moron; P, psychopathic —information wanting or not significant; S, parent has deserted; d, dead; x, cause of defect in child examined is found at head of column; Ave., average; Inf., inferior.

The following classification based on the intelligence quotient is the one used in determining the mental status of persons examined.

Between the intelligence quotient of

0 and 19 idiot
20 " 49 imbecile
50 " 69 moron
70 " 74 doubtfully feeble-minded
75 " 80 borderline
80 " 90 dull-normal
90 " above, normal.

Individuals classed as dull-normal have not graded above the intelligence quotient of 85, and at the same time their histories show them to be socially and economically incompetent. In the light of these facts, while such persons cannot be regarded as technically feeble-minded, they are nevertheless below the threshold of normal intelligence and have been treated as defective in this study. Parents found to be psychopathic have been also included with defectives in treating of heredity.

Thirty, or 60 per cent., of the fathers were examined. Of this number 13, or 40.3 per cent., are dull-normal; 4, or 13 1/3 per cent., are psychopathic; *i. e.*, 17, or 56 per cent., of the fathers examined are either dull-normal or psychopathic. Approximately one out of every three of the fifty fathers are known to be defective in some form.

Forty-seven, or 94 per cent., of the mothers were examined. Of this number 15, or 31.9 per cent., are morons; 12, or 25.5 per cent., are dull-normal; 5, or 10.6 per cent., are psychopathic; *i. e.*, 32, or 68 per cent., of the mothers examined are either morons, dull-normal or psychopathic. Approximately three out of five of the mothers are known to be defective in some form.

In all, 30 fathers and 47 mothers, or a total of 77 parents were examined. Of this number 49, or 63.6 per cent., are defective in some form; *i. e.*, 19.4 per cent. are morons; 32.4 per cent. are dull-normal; 11.6 per cent. are psychopathic.

In 36, or 72 per cent., of the families either one or both of the parents are known to be defective in some form; in 13, or 26 per cent., of the families both parents are defective in some form; in 9, or 18 per cent., of the families both parents are normal; in 5, or 10 per cent., of the families one parent is normal and the other not examined.

If only families are considered in which the mental status of both parents is known the percentage of defective heredity is somewhat different. In 27 families in which both parents have been examined, both parents are normal in 9, or 33 1/3 per cent., of cases; one parent is normal in 5, or 18.5 per cent., of cases; both parents are dull-normal in 3, or 11.1 per cent., of cases. Stated in terms of type of parentage, normal parentage occurs in 14, or 51 per cent., of cases; dull-normal in 12, or 44.4 per cent., of cases; moron in 8, or 30 per cent., of cases; psychopathic in 6, or 22.2 per cent., of cases. If the 54 parents of these 27 families are taken separately, then 23, or 42.3 per cent., are normal; 15, or 27.7 per cent., are dull-normal; 8, or 14.8 per cent., are morons; 8, or 14.8 per cent., are psychopathic.

Reference to Tabe I shows that idocy occurs only in the first 9 families recorded; imbeciles occur only in the 18 families from the family number 10 to 27, and morons, while a few occur along with the imbecile group, are chiefly confined to the last 23 families recorded.

Of the 15 parents of idiots examined only 2, or 13 1/3 per cent. are found to be defective; of the parents of imbeciles 20, or 77 per cent., are found to be defective; of the 35 parents of morons 27, or 77 per cent., are found to be defective. Compared on the basis of the number of families in which one or both of the parents were found to be defective the percentage of defective heredity runs somewhat higher. In the 9 cases of idiocy defective heredity occurs 2 times, or in 22 per cent. of cases. In the 18 families in which imbeciles occur defective heredity appears 15 times, or in 83.3 per cent., of cases. In the 23 families in which morons are the lowest grade of offspring, defective heredity occurs 17 times, or in 82 per cent., of cases. Defective heredity occurs, therefore, in the parentage of imbeciles and morons with about the same frequency, but is relatively infrequent for idiots.

Two hundred and nineteen children have been born to 50 families. Of this number 59 have died and 160 were living at the time examination was made. Of the number living 9, or 5.6 per cent., are idiots; 25 or 15.6 per cent., are imbeciles; 42, or 26.2 per cent., are morons; 5, or 3.1 per cent., are dull-normal; 2, or 1.2 per cent., are psychopathic; 77, or 48.1 per cent., are normal.

TABLE II.

Offspring from groups of families according to the degree of defect present in the parents.

Group No.	PARENTS	Number of Families	OFFSPRING						Av. No. children born to each family	Av. No. Children dead	Av. No. Living Defective Children	% of Living Defective Children
			Idiot	Imbecile	Moron	Dull-normal	Normal	Psychopathic				
1	Both normal	9	6	2	1	0	26	0	4.3	0.4	1	25.7
2	One normal One unknown	5	1	1	3	0	18	0	6.4	1.8	0.8	21.3
3	One normal One defective	5	1	2	4	2	3	1	5.4	2.8	1.8	69.0
4	One defective One unknown	18	1	11	13	2	22	1	3.5	0.8	1.5	56.0
5	Both defective	13	0	9	21	1	8	0	4.0	1.6	2.4	79.5
6	One a moron	8	1	7	12	0	2	0	4.5	1.7	2.5	90.0
7	One or both dull-normal	12	0	9	18	1	9	0	4.4	1.3	2.3	75.7
8	One psychopathic	6	0	3	6	2	5	1	4.3	1.5	1.8	64.8

Table II shows the type of offspring from the different groups of parents on the basis of the mental level of one or both of the parents. In all of the groups represented in this table, with the exception of groups 3 and 6, both parents have been examined. The number of living offspring does not differ greatly for the different groups of parents, being a fraction over 4 children for each family. with the exception of the families in groups 2 and 3. In these groups the average number of living children for each family is 6.4 and 5.4 respectively. The number of families, however, on which the average is based is smaller than for the other groups found in

the table, thus reducing the probability of the averages being general for the class of parents represented in groups 2 and 3.

It is commonly found that the feeble-minded propagate more rapidly than do normal people. The figures in Table II fail to show any marked difference in the size of the families on the basis of intelligence unless the number of dead children be taken into consideration. In this case the average number of children for normal parents is 4.7 and 5.96 for families in which one or both of the parents are defective.

In general the percentage of defective children increases as the intellectual level of the parents becomes lower. The lowest percentage of defective children found is 21.3 per cent. for group 2, in which one parent is normal and the other not examined. The highest, 90.9 per cent., is found in group 6, in which the mother is a moron. It should be expected to find the highest percentage of defectives for the group in which both parents are defective, *i. e.*, in group 5, instead of in group 6. The aggregate mentality, however, of the parents found in group 6 may be quite as low, if not lower, than that of the parents found in group 5, since in group 6 each mother is a moron and 5 of the 7 fathers are defective. There is also one noticeable exception found in group 5, viz., only one defective child and four normal children have been born to one family in which both parents are defective, thereby reducing the percentage for this group.

Since two-thirds of the parents represented in group 8, table II, are psychopathic, and, therefore, not true intellectual defectives, there is some doubt regarding the relative position of this group as compared, on the basis of intelligence, with other groups of the study. Six of the 12 parents represented, including three parents who are also psychopathic, however, are definitely defective, and only one parent of the group is normal. In consideration of these facts, it would seem that the aggregate intellectual level of this group should not be considered much, if any, above that of group 5, in which both of the parents are defective.

Under the heading "Most Probable Causes" in table I, there has been checked for each family what has appeared to be, in consideration of the clinical facts at hand, the most probable causes of feeble-mindedness in the children examined.

Feeble-minded heredity has been assigned as a cause when both parents have been found to be defective in some form, or when one

parent and two or more of the children or some other member of the family one or two generations removed, has been found to be feeble-minded or psychopathic. In 21 families one or more of the children have been recorded as being defective because of feeble-minded heredity. Of this number both parents are defective in 8 cases; one parent and one or more of the parents' relatives in 9 cases; one parent and two or more of the offspring in 4 cases; *i. e.*, feeble-minded heredity has been assigned as a cause of feeble-mindedness in 21 cases, or 42 per cent., of cases. Psychopathic heredity has been assigned as a cause of feeble-mindedness when one or both of the parents are psychopathic, or when the history has shown psychopathic heredity and the child examined manifests in addition to feeble-mindedness, mental instability or insanity. There are 9 families in which defect in the children has been ascribed to psychopathic heredity. In one case both parents are normal, but their hereditary history is predominantly psychopathic; in one case one parent and one child are psychopathic; in two cases both parents are psychopathic; in the remaining five cases one parent and one or more of their ancestors are known to be psychopathic; *i. e.*, psychopathic heredity has been assigned as a cause of mental defect in 9, or 18 per cent., of the families studied.

Disease has been assigned as a cause of feeble-mindedness when the hereditary history, so far as known, is negative and when the child has suffered from some disease which may have been the cause of mental defect. One child respectively in each of eight, or 16 per cent., of the families has been found to be feeble-minded because of disease in infancy. Poliomyelitis is recorded as a cause in three cases; brain fever, cerebro-spinal syphilis, scarlet fever, pneumonia (presumably pneumonia encephalitis), rachitis respectively in one case each. Accident is the most questionable of the causes assigned, and has been recorded as a cause of feeble-mindedness only when the hereditary history is negative and when there has been no disease of a nature to cause mental defect. Three, or 6 per cent., of cases are recorded as due to accident. One case is due to mental shock, one to premature birth and one to prenatal injury.

In 9, or 18 per cent., of cases feeble-mindedness is recorded as being due to causes that are unknown or indeterminable from the clinical data at hand. In two these cases both parents are normal and the hereditary history is negative; in one case the child is of the Mongolian type (this type of feeble-mindedness is comparatively

rare, and usually occurs when parents are normal). In the remaining six cases one parent is dull-normal in each instance. There is some doubt in regard to the placing of these latter six cases, but in the absence of additional corroborative data the writer has thought it best to regard the causes as doubtful or indeterminable and to record them as unknown.

On the basis of the number of families rearing defective children, therefore, 21, or 42 per cent., of the families studied have borne defective children because of feeble-minded heredity; 9, or 18 per cent., of the families have borne defective children because of psychopathic heredity; 8, or 16 per cent., because the children have suffered from some disease in infancy or early childhood; 3, or 6 per cent., because of accident to the child, and 9, or 18 per cent., of the families have borne feeble-minded children from causes that cannot be determined from the data at hand.

If the causes are combined and classed as hereditary, external and unknown, then 60 per cent. of causes are hereditary, 22 per cent. are external and 18 per cent. are unknown. If, however, one parent being dull-normal is sufficient to account for defectiveness in offspring, then 6 cases should be taken from the cases recorded as unknown and included with the hereditary causes, making a total of 72 per cent. for hereditary causes.

Table III gives, in round numbers, in terms of percentages, the proportion of the different degrees of mental defect found among the feeble-minded: 1. As estimated by the Report of the Royal Commission on Care and Control of Feeble-minded. 2. As found in the Sonoma State Home, California. 3. As found among the children from 36 families in which one or both of the parents are defective. 4. As found among the parents of the same 36 families in which one or more of the children are defective.

From table III it appears that only 27 per cent of the parents examined are as low in intellectual level as any of the other groups represented. This 27 per cent. is, however, not entirely comparable to the other percentages in the moron column, since in the other three groups a large proportion of the morons are either low or middle-grade morons, whereas in the defective parent group nearly all are high-grade morons. It would be more nearly representative of the actual facts in the case if 20 of the 27 per cent. were included with the next higher group, viz., the dull-normal group, thus making that group to read 68 per cent., instead of 48 per cent. The table would

TABLE III.

No.	GROUPS OF DEFECTIVES	TYPE OF DEFECTIVES					
		Idiot	Imbecile	Moron	Dull-Nor.	Nor.	Psycho-pathic
I	Feeble-minded at large	5%	20%	75%			
II	Sonoma State Home	24%	48%	28%			
III	Children of defective parents in 36 families	2%	22%	38%	5%	32%	2%
IV	Parents of defective children in 36 families			27%	48%	9%	16%

then show that the defective children of the 36 families represented in group III are accounted for by a group of parents, 68 per cent. of whom are high-grade feeble-minded or dull-normal, 16 per cent. of whom are psychopathic, and 9 per cent. of whom are normal. Since the psychopathic, a large proportion of whom are themselves either feeble-minded or dull-normal, and the normal have all intermarried with the morons and dull-normal, it must appear that the high-grade feeble-minded and dull-normal parents are almsost entirely responsible for the defective children of group III, the majority of whom are below their parents in intellectual level. It should be

noted, however, that 32 per cent. of the offspring of this group are normal children, *i. e.*, that a group of parents only 9 per cent. of whom are normal have given birth to a group of children 32 per cent. of whom are normal. By reference to table II, group 5, in which both parents are defective, it may be seen that 20 per cent. of the offspring are normal. The proportion, therefore, of normal children for this group of parents, in which 9 per cent. are normal, is not much greater and may be taken to represent the normal results from this grade of parentage.

If the results from so small a number of families may be taken as significant, it would appear that high-grade defective parents are responsible for the three grades of offspring, viz.: 1. The imbecile and low moron, who become public charges. 2. The high-grade normal and dull-normal, who, for the most part, pass for normal, but nevertheless are responsible for the greater number of defectives in the next generation. 3. Normal children among whom, because of their defective heredity, there must be a large number of carriers of defect.

The low mental level of the parents is in general verified by the unskilled occupation of the father and the inferior social status of the family. The occupation of fathers, ranking intellectually below average normal, does not rise above that of the unskilled laborer, and the social position of their families is in all but two cases regarded as inferior.

No special effort has been made to determine the moral status of the families studied, but in general such data as came to hand is indicative of the low mental and social status found. Thirteen of the fathers are alcoholic and six have deserted their families. In each case of desertion the wife is feeble-minded, but caring for herself in an inefficient manner without the aid of charity. Only one of the 47 mothers examined has been reported as immoral. The economic status likewise corresponds with the intellectual level of the parents. All but one of the families in which the parents are normal contribute fully toward the support of their defective members in the State institution, whereas only two of the families in which the parents rank below normal thus contribute toward the support of their defective members found in the institution.

Although this study shows 63.6 per cent. of all parents examined and 5.19 per cent. of their offspring to be defective, these figures do not indicate fully the problem involved from the standpoint of heredity or the significance of this class of persons for society. Accord-

ing to the Mendelian law of heredity, persons, although testing normal in intelligence, may yet be carriers of feeble-mindedness, and thus, while free from detection themselves, may nevertheless transmit defective intelligence to their offspring and pass their condition on to posterity. It should, therefore, be expected that the normal children born to defective parents may in varying degrees be carriers of defective heredity, and thereby in turn transmit feeble-mindedness to their children. In this way normal persons born of defective parents become even more detrimental to society than do persons who are definitely defective, since, because of their normal condition, they must be allowed to continue at large and to rear offspring unhindered. Forty-one per cent. of the normal children of this study are born of defective parentage, and are thus themselves potentially defective from the standpoint of heredity. The situation is, from a practical point of view, still further complicated from the fact that the moron and dull-normal parents have not been suspected of mental defect, but, on the other hand, have passed for normal, and have been accorded the privileges and rights of normal citizens. Clearly, then, the persons represented in this study who are chiefly responsible for the birth of feeble-minded children and the transmission of feeble-mindedness to posterity have not, heretofore, been recognized as in any way dangerous to the welfare of the race. From table III it may be seen that parents of the feeble-minded are not in any very large measure brought to public notice because of their mental condition.

Manifestly the scientific and practical course desirable from the standpoint of race betterment and social progress would be to prevent persons such as are represented in this study from rearing offspring. An undertaking of this kind would, however, not be without attending difficulties. Such records as are at hand indicate that none of these parents have at any time attracted attention because of mental defect. On the other hand, while they are not a social or economic success, they have, for the most part, been able to eke out an existence without the aid of charity. Not only have these persons escaped the notice of their associates, but teachers and employers of labor have not regarded them as other than persons of ordinary intelligence, and it is quite probable that an expert would detect nothing subnormal in their behavior in a brief unscientific interview. In general the defective parents examined are just below the threshold of normal intelligence, and from a social point of view, unquestionably incom-

petent. On examination they reveal the characteristic attitude of the stable high-grade defective, *i. e.,* they make rather good use of what intelligence they have, but have little capital on which to draw, and no reserve.

These high-grade defective persons, however, frequently present no small difficulty to the examiner and in an administrative way. The examiner may find difficulty in deciding whether or not a child is defective or backward, especially if the child be in the pre-adolescent stage of development. The large number of borderline and doubtful cases reported in various studies in intelligence attest to the difficulty experienced by the examiner in making definite diagnosis from a single examination. Besides, the difficulty in diagnosis, interested parties not only doubt the defectiveness of the high-grade moron child, but are disinclined, especially if the child is well behaved, to take measures appropriate for a child of defective mentality. In general, interested parties and the public are inclined to doubt the defectiveness of any individual in question until such time as the said individual has committed some overt act against society or has become destitute.

The hopeful aspect of the problem, however, inheres in the fact that so much of feeble-mindedness can be scientifically determined and parenthood of the unfit prevented if proper measures are taken at the proper time, *i. e.,* before puberty. Excluding the normal and psychopathic parentage from the 50 families here studied, there remain 40 parents who are either morons or dull-normal. This number are distributed among the 36 families in which one or both of the parents are defective. Thus, the dull-normal or moron is included in 88 per cent. of the defective heredity found. Assuming that defective intelligence of this grade is as readily detected before puberty as in adult life, it would follow that 88 per cent. of defective intelligence represented in this study might have been prevented if the individuals now parents had been examined, diagnosed and cared for in the early years of their school life.

Table III shows that only a very small percentage of the grade that become parents seek entrance to an institution for defectives. A lessening, therefore, of the number of feeble-minded born cannot be brought about alone by providing custodial and colony care for such as seek protection, but to this end measures must be taken to discover and protect the child who would naturally become the parent of feeble-minded offspring.

Since all children must report for school before the age of seven, it would appear that the various school systems are in a position, if properly equipped, for making diagnosis and classification of defective children at an age before they have become dangerous to society. Ordinary means of observation are not sufficient for detecting the high-grade defective, but if a school system were equipped with a clinical department organized for the purpose of classifying children on the basis of general intelligence, these high-grade defectives who otherwise pass undetected would be discovered and brought to public notice, so that society might take measures to prevent them from propagating their kind.

Such a clinical department should have at least three practical ends in view, viz.: 1. To detect feeble-mindedness in the school population. 2. To study the causes and social conditions surrounding feeble-mindedness. 3. To discover means for training and caring for the defective population in the most suitable way.

The effectiveness with which these ends might be served would depend upon the organization of the department. The field of clinical psychology is relatively uncharted and the science of measuring general intelligence in the developmental stage. It should, therefore, be expected that the department of clinical psychology in the public schools would undertake study and research into the means and methods of classifying children on the basis of general intelligence. The very large number of high-grade defectives who pass through the schools without detection, and who sometimes deceive the more expert examiners, would indicate a need for more accurate determination of intelligence level of persons who approach the lower limen of normal mentality. There would also be need for a study of social conditions not only with a view to a better understanding of the conditions which favor the propagation of the feeble-minded, but also with a view to bringing about a clearer conception on the part of the general public in regard to the needs of defective persons and the problems occasioned by the feeble-minded in the community.

These suggestions regarding a clinical department are offered out of consideration of the facts afforded by the histories of the high-grade defective parents represented in this study. In practically every case there is suggestive evidence that earlier diagnosis would have revealed a condition of defect sufficient to warrant society in taking measures to prevent the individuals in question from propagating their kind.

SUMMARY.

1. Of the 77 parents examined 63.6 per cent. are defectives; *i. e.*, 19.4 per cent. are morons, 32.4 per cent. dull-normal, and 11.6 per cent. psychopathic.

2. Defective heredity is found in 72 per cent. of the 50 families.

3. Defective heredity appears in 22 per cent. of the families in which idiocy is found, in 83.3 per cent. of families in which imbeciles are found, and in 82 per cent. of the families in which morons are the lowest type of offspring.

4. Of the 219 children born to 50 families 59 are dead and 160 are living. Of the living children 5.6 per cent. are idiots, 15.6 per cent. imbeciles, 26.2 per cent. morons, 3.1 per cent. dull-normal, 1.2 per cent. psychopathic and 48.1 per cent. normal.

5. Causes of feeble-mindedness are found to be 60 per cent. hereditary, 22 per cent. external and 18 per cent. unknown.

6. The majority of parents responsible for defective offspring are themselves defective, but are high enough in the scale of intelligence to escape detection by ordinary means.

7. Histories of the 50 families indicate that such persons as are represented by the parents studied can be detected by expert means in the early years of their school life.

A Few Specific Problems in Mental Deficiency which Psychology can Help Solve

Samuel C. Kohs

The emphasis is placed upon research with the moron grade with the aim of, (a), study; (b), training based on these findings; (c), placement in supervised vocation, and (d), follow-up.

* * * * * * * *

1. Research to determine what we can do with them outside of four institution walls after locating the high-grade feeble-minded and training them.

2. The Borderline Case. More careful study to determine who these are, what special problems they raise, how these should be met.

3. The qualitative differences of the feeble-minded, what these are, these facts to lead to a more efficient educational and vocational adaptation.

4. The psychology of the feeble-minded, aside from intelligence testing. Research comprehensively undertaken into a variety of phases of their mental and physical behavior. Emphasis upon practical applications.

5. Experimental pedagogy with the feeble-minded. The develment of a scientifically tested educational program. Testing statistically the results of various educational methods and psychologically analyzing success or failure.

6. The insanity of the feeble-minded. Why do feeble-minded become insane, course of the condition, how is it differentiated from insanity among normals, light on prevention.

7. The potential delinquent. What differentiates the feeble-minded delinquents from feeble-minded non-delinquents, is it merely a question of opportunity, are there any other tangible symptoms to differentiate the two groups? What applications might there be to normal delinquents and normal non-delinquents?

8. Work habits of the feeble-minded. What kind of employes do they make, how should their work periods, rest periods, play periods, change of occupation be managed? Can we diagnosticate "employability?"

9. The potential feeble-minded. How recognize, what to give and how in the matter of training at the earliest possible opportunity.

10. The feeble-minded *now* actually employed in industries. Where are they, what do they do, how do they do it, how related to the labor turnover. Co-operation of industries necessary. A comprehensive and thorough study of the field would undoubtedly reveal a large mass of facts which might perhaps revolutionize our present treatment of the moron.

* * * * * * * *

Our present position presents itself to me as follows: We can now quite accurately diagnose the feeble-minded. The next problem to be solved is what can psychology contribute toward utilizing the maximum mental and physical capacities which these defectives possess. I am inclined to the belief that we have not begun to tap the capacities for work and achievement of the mentally deficient. The necessary preliminary to that, of course, must be a quantitative and qualitative study of the feeble-minded, scientifically tested education, proper placement and careful follow-up.

Special Classes in Boston

Mary Burkhardt, Roxbury, Boston

Authorities differ as to which was the first city in the United States to establish classes for mentally-deficient children. Some say that Cleveland, Ohio, started the movement in 1875; others say that it was Providence, Rhode Island, in 1893. Whichever city is responsible, I think no one will deny that the establishment of special classes has been, and is, extremely important and valuable part of our educational system.

The first class for mentally-deficient children in Boston was formed in January, 1898. One year later the second class was started, and in 1911 there were nine such classes. Miss Ada M. Fitts, our present supervisor, was appointed to her position in 1912, and owing to her tact, insight, ability and enthusiasm, the number of special classes has rapidly increased until there are now seventy-two special classes in Boston. In this city the name of "Special Class" is given to classes for mentally-deficient children only.

There are sixty-nine elementary school districts in Boston. In forty-nine of these there are special classes. The number of special classes in these districts (with the exception of the centers) varies from one to four, a single class to a district being in the majority. These classes are formed in the order of the request of the principals of the elementary school districts and as quickly as the state of city finances will permit.

On February 2, 1914, the Boston School Committee passed the following regulation dealing with the admittance of pupils to the special classes: "Pupils shall be admitted to special classes on probation by the teachers thereof. Pupils shall be regularly admitted to special classes on the recommendation of the Medical Inspector of Special Classes; and discharged from special classes on the recommendation of the Supervisor of Special Classes; both subject to the approval of the Superintendent."

When the formation of a Special Class is desired in a district, the principal generally sends word to his lower grade teachers, asking them to recommend children whom they think are fit candidates for a Special Class. The teachers fill out a printed blank which asks for

details about the child's behavior, mental capacity, etc., and these children are examined by Dr. Arthur C. Jelly, the Medical Inspector of Special Classes.

Miss Fitts says that the children who have been recommended for Special Classes and who still are so recommended may be grouped under three heads: first, the children who are of such low grade mentality that they should not be kept in the public schools at all, but ought to be placed in an institution or else cared for privately; second, children who show marks of an abnormal mental condition and who have been found nearly or quite unimprovable under ordinary classroom instruction; and, third, normal but very dull children who are nevertheless not beyond the reach of classroom instruction skilfully administered. The Special Classes are designed for children of the second description.

It is to be regretted that the regular grades are not relieved of children of too low mentality for the Special Classes, but it has not seemed advisable to attempt to care for such cases while there we have far greater number of improvable children who need training and who will benefit by it and who are likely to give much more trouble in the regular grades. On the whole, the better plan is for the low-grade type of child to be sent to a State institution, and we are constantly trying to transfer institutional cases from our public schools to the State institutions at Wrentham and Waverly. As these two institutions are overcrowded, it unfortunately takes a long time to have them admitted. Then, too, children cannot legally be sent to State institutions without the consent of their parents unless committed by the courts on account of some delinquency, etc.

The number of pupils in a class is wisely limited to fifteen to a teacher. Most authorities agree that fifteen is sufficient.

Goddard says that ten would be better. In his book, "Schools and Classes for Exceptional Children," Mitchell says that classes should have an average attendance of twenty to twenty-five. Although I am not naturally vindictive, I wish that he would be forced to teach a Special Class of that number for a few months. That would be punishment enough for saying such a thing. Any one who has had practical experience in teaching a Special Class knows that at the end of a month even fifteen would be considered by Mitchell too large a number to deal with properly.

Snedden says: "A large problem in the education of the mentally deficient is that of cost, present and to come. This education is

expensive as contrasted with the education of a normal child, and the productive capacity can never become very great." It is better to spend large sums in the education of the mentally deficient than to spend still greater amounts in caring for them later in almshouses, prisons, etc.

It would seem to be poor economy to increase the number of children in a Special Class in order to save on the "per capita" expense. If effectual work is to be done, it is better to limit the number of classes rather than to raise the limit of the number of pupils in a class. Like Goddard, I believe that whatever Special Classes cost, they should not only exist, but they should flourish.

Wallin says: "In order to reduce as far as possible the expense of Special Classes to the community, and in order to provide opportunities for the children in these classes to acquire the habit of doing things which have a direct utilitarian value both to themselves and society, a part of the manual training work should consist in making articles or supplies which are of use to the pupils themselves or to the schools; or which can be sold, the proceeds to revert to the Special Classes for the purchase of materials." This plan is followed in many of our Special Classes.

There are several disadvantages in allowing mentally deficient children to attend the classes of normal children. They attempt work entirely beyond their capabilities to their utter discouragement; the teacher wastes the time of the rest of the class trying to teach the mentally deficient children something their limited capacities prevent them from understanding; the teacher expends her vitality to her detriment and to no gain on the part of these children; they upset their classmates by their lack of control, etc. The good that Special Classes do for their pupils; the relief their absence affords the regular grades, and the benefit to the community, is inestimable.

Miss Fitts says: "The Special Class has usually occupied a room in an elementary school building and has cared for the mentally defective children of that immediate district. In distant and isolated schools and some others, only simple classes are necessary. In some sections that are centrally located and have good transportation facilities, it has been possible to establish centers consisting of six classes or more which are fed by several different districts.

At present there are three centers in Boston. The first center for girls was started at the Frances E. Willard School in 1913. In 1914 the first center for boys was inaugurated at the George T. Angell

School. A second center for boys was opened at the Somerset Street School in 1917.

There are distinct advantages in having centers. On account of the number of pupils at a center, opportunities for careful grading are possible; specialists in woodworking, cooking, sewing, etc., can be employed to excellent advantage; the change of teachers is a rest to the pupils while the change of classes is often a relief to the teachers; the centers can serve as laboratories for educational experiments, child study, etc.

At the boys' centers, cane seating, woodworking, cobbling, brush making, rug making, etc., are taught as well as academic studies. In addition, Miss Helen J. Roberts, one of the teachers at the George T. Angell Center, has loaned some of the land belonging to her farm at Weston, Massachusetts, to the boys of this center for their use. Under her skilled instruction and careful supervision, very valuable material, physical, mental and moral results, have been obtained from the cultivation of this land. The girls at the Frances E. Willard School receive instruction in domestic science, millinery, sewing, embroidery, crocheting and knitting, in addition to academic studies. The amount of manual or academic work that a child is given depends upon his individual needs and capacities.

The syllabus for Special Classes published in 1914 was compiled from material contributed by all of the Special Class teachers. On account of its general excellence (and the fact that it was free for the asking), it was in great demand. A larger and revised edition of this syllabus, named "The Boston Way," was published in September, 1917. Like the earlier syllabus, this later one was compiled from material contributed by all the teachers.

Miss Mary A. Gove, one of our finest Special Class teachers, gave unstintedly of her time and self in organizing the material of the above syllabus. Although "The Boston Way" is not a free publication, we believe it will be in even greater demand than the former syllabus.

We all agree with Miss Fitts that the ideal condition would be for those Special Class children needing constant supervision to go directly to the institution, and thus safeguard the public from inefficiency, degeneracy, and all the other social consequences of feeble-mindedness. Since this is impossible, we must further agree with Miss Fitts that we should attempt to bridge the gap between the Special Class and the

institution by providing a system of after-care for the feeble-minded who are forced to compete with the normal in the working world.

One of the qualities which differentiates the subnormal from the normal person is that the former is not self-directing. He may become self-supporting, but only under direction and supervision. In order to secure the co-operation of employers of "graduates" of Special Classes and to have them understand fully the capacities and limitations of these employees; in order to secure the co-operation of institutions and all other agencies interested in the problem, etc., it is imperative to have a "follow-up" worker for these purposes. Such a worker inevitably does much to lessen the social problems caused by the subnormal. Miss Helen M. Mead, one of Boston's Special Class teachers, has filled this position for nearly two years. Her efforts in securing suitable positions, in the oversight of the work of her charges, etc., have been extremely successful.

In order to teach a Special Class in Boston, one must take certain examinations. The following requirements must be filled before an applicant may take these examinations. She must have a diploma from a high school approved by the Board of Superintendents, or evidence of an equivalent academic education; must have evidence of one year's successful experience in teaching a class of mentally defective children; or, evidence of one year's successful experience in a Boston public school as special assistant in a Special Class; or, evidence of two years' successful experience in teaching regular graded day schools, and she must have successfully completed a course for teachers of mentally defective children, approved by the Board of Superintendents.

A candidate for the certificate of Instructor in Special Classes taking examinations in January, 1918, was examined in the following subjects: major subject, Theory and Practice of Teaching Mentally Defective, 225 points; minor subject, Principles and Processes of Manual Training, 125 points; minor subject, Drawing and Color, 125 points; minor subject, English, 125 points; Teaching Exercise, 100 points; and Amount, Quality, and Character of Experience, 300 points; total, 1,000 points.

According to the latest salary schedule, the salary of Instructor of Special Classes is $876 for the first year. The annual increase is $96. The maximum is $1,452, while the maximum of the teachers of the elementary grades is $1,368.

This report would be incomplete if I closed without some reference to our Friday afternoon conferences. Although we are indebted to Miss Fitts for much that is valuable, helpful, and progressive, there is nothing that places us deeper in her debt than her obtaining for us the privilege of these conferences which on that afternoon take the place of our regular school-room duties. The benefit derived by the teachers from these conferences is immeasurable and the reactions upon their pupils are equally important. As the reservoir of our inspiration, enthusiasm, and vitality becomes dry towards the end of the week, these Friday afternoon conferences fill up anew this reservoir with these qualities which our children require of us.

There has been too great a variety of these conferences to allow more than a mention of a few of them. Among the lecturers are Dr. Walter E. Fernald, Dr. Gessell, Dr. William Healy, and Dr. Augusta Bronner. Dr. Fernald gave us a course of lectures and conducted clinics at Waverly which have proved helpful to us in understanding the problem of the mentally deficient child. Dr. Gessell gave an instructive course of six lectures on the "Education of the Feebleminded." Dr. Healy, together with Dr. Bronner, gave us a valuable course of lectures dealing with "Problems of Individual Adjustments in Child Life." Experts have given us practical lessons in manual, sense, and physical training, etc. Some of the conferences have been utilized by the teachers for the discussion of problems relating to our work when valuable ideas have been interchanged.

Assistant Superintendent's Report

C. E. Nash

When I came to Vineland, September 10, 1898, the Training School, then known as the New Jersey Training School, had rounded out its tenth year. It seemed to me then as if it had always been in existence. Now I realize it was a mere child. Even now we are but thirty years old, and we should be, and I believe are, in the strength of our manhood. A comparative statement of conditions and things that have taken place in the last twenty years may be interesting.

There have been greater changes in the last three years than the seventeen years previous. In 1898 the buildings in use at the

north were Moore, Wilbur and Seguin, and Prof. Garrison's cottage, which is now a part of Itard, was then located north of the present superintendent's cottage, near Landis avenue. Maxham cellar was being dug. The superintendent's cottage was built several years later, and in still later years Chandler Hospital, Tyler and Louden.

Garrison Hall and the old power house, which is now a part of the store room, were all there was of the central group. Since that the power house was built, the store building greatly enlarged (this was intended to be a store on the first floor and and industrial department on the second). Later, however, the second floor was used by Dr. Goddard in his research work. The laundry was then built, and about five years ago the New School Building.

At the south Cattell and Robison were the main buildings. Wistar was used as a cottage as well as a hospital, and there was a group of boys in Bridgman. The H. C. Cottage, which means "Honor Cottage," was devoted to a few "honor boys" who lived there. They were the big, bright fellows of the institution, none of whom are here now.

The cow barn, horse stable and Read Hall were one building, Read Hall second floor being used for a Manual Training room. The shoe shop was in the tower of the barn. This building burned in 1903, destroying all but Read Hall. The building was rebuilt as a stable, and we then went over in Pine Grove, which seemed a long distance, and built the present cow barn.

The only other buildings at that time were the carpenter shop, donkey stable and old green house. Since that the whole poultry department has been built, also the wagon sheds, cannery and merry-go-round. The club room building, which was moved from where the tennis court now is, west of Garrison Hall, was then the main office. Before Garrison Hall was built it was used for entertainments.

The following have since been built: Baker, Mills, the four Summer Cottages, and Itard. The laundry was where the present boys' dining-rooms are, and the pumping stations and wells back of that.

There were no electric lights at that time. Oil lamps were used exclusively, except in Moore cottage and Garrison Hall, where gas was used. Later an acetylene outfit was put in the basement of the store room.

In those days there was no trolley and the school sent a team to take the employes to church Sunday morning, also one evening during the week. The last train from Philadelphia left there at 6.45 P. M. There were but six each way during the day. Every employe was expected to be at Assembly Sunday P. M., which lasted one and three-quarter hours. We also had an hour's Assembly Sunday A. M. All teachers were required to be on duty every Saturday till noon and relieve in the cottages every other Sunday. They also had dining-room duty. Women attendants then started at $12.00 per month and men at $16.00.

One of the first real developments was the Summer School, which speaks for itself. The laboratory came next, and that has attained a world-wide reputation. Later the Extension Department, which is now the Committee on Provision, and is doing a world of good in disseminating knowledge concerning the mentally defective.

The ice plant saves continual hauling of ice from the town, besides giving us five refrigerator boxes for meats, fruits, vegetables, etc. The automatic telephone system saves a great deal of time on the part of the office people, and can be used at any time, whether the office is open or not. We have become so used to it that I am afraid we do not thoroughly appreciate it. The whole electrical service is in splendid shape now, including lights, alarms of various kinds and phones.

Besides all this we have much up-to-date machinery, such as the tractor, truck, lathes, power drill press, pipe cutter and threader, etc., all of which save time and help to solve the labor shortage problem.

In 1898 we used $2,542.24 worth of coal and in 1917 $13,188.24.

We then had 215 children, 24 of whom were private cases. We now have 449 children, 138 of whom are private.

In 1898 we had about 175 acres of land and to-day we have about 1,100.

We had 46 employes in 1898 and to-day we have 132 employes, an average of one employe to every four children.

"The aim of the education of feeble-minded children should be to train them to be self-supporting. Intellectual training, in its narrow sense, is of secondary importance."—*W. L. Treadway, M. D.*

The Scientific Basis of Pacific Colony, California

J. Harold Williams, Ph. D.

Director of Research, Whittier State School, California

That California is cognizant of the importance of scientific work as the correct basis for institution procedure is again shown in the act creating Pacific Colony, the newly established institution for the feeble-minded and epileptic. The marked progress of the past few years with reference to feeble-mindedness has been due in no small measure to the work of research laboratories of the Training School at Vineland and other institutions. In most cases, however, research laboratories have developed as a necessary step in the growth of the institution. Pacific Colony will enjoy the advantage of having scientific requirements written into its initial law. The following secions are of special interest in this connection:

Sec. 11. Provides that Pacific Colony shall be located on a site "of preferably not less than eight hundred acres." This indicates the recognition of the value of a large area, suitable for out-of-door work.*

Sec. 16 Defines feeble-mindedness for purposes of Pacific Colony. The feeble-minded are "(a) Those who are so mentally deficient that they are incapable of managing themselves and their affairs independently with ordinary prudence, or of being taught to do so, and who require supervision, control and care for their own welfare, or for the welfare of others, or for the welfare of the community; or, (b) those whose intelligence, in the judgment of one or more psychologists, when they have been examined by such psychologist or psychologists making use of standardized psychological tests and whatever supplementary material may be available, will not develop beyond the level of the average child of twelve years."

Sec. 19. In all cases of commitment to Pacific Colony "the judge . . . . must inquire into the condition or status of such supposedly feeble-minded or epileptic person, for which purpose he may by subpoena require the attendance before him of a clinical psychologist and a reputable physician, or one of each, or two of

*The site selected has an area of 1,326 acres.

either, to examine such person and testify as to his or her mentality. Such physicians must have made a special study of mental deficiency and be qualified to act as 'medical examiners.'"

Sec. 23. "When a boy or girl is brought before the juvenile court under the juvenile court law, if it appear to the court . . . that such person is feeble-minded within the meaning of this act" the court may direct that proceedings be taken under the Pacific Colony act.

Sec. 24. Provides for the temporary admission, without commitment, of persons "suspected of being feeble-minded, to ascertain whether or not they are actually mentally defective." The results of the investigation may be used by the court as a basis for commitment or other disposition of the case.

Sec. 27. Provides that the trustees of Pacific Colony may transfer any insane patient to hospital for the insane, with the approval of the state commission in lunacy.

Sec. 28. Provides for transfer of inmates between Pacific Colony and Sonoma State Home, another institution for the feeble-minded.

Sec. 34. Provides for the transfer of boys or girls from Whittier State School, the Preston School of Industry, the California School for Girls, or any other industrial or correctional school in the State where the person is feeble-minded.

Sec. 35. "The object aimed at in the Pacific Colony shall be such care and training of its inmates as to render them more useful and happy, and tend to make them as nearly self-supporting as their level of intelligence may permit."

Sec. 38. "The Pacific Colony shall have a department for the clinical diagnosis of inmates, and their subesquent classification and observation, with a view to their proper segregation and treatment."

Sec. 39. "The superintendent shall, at least two weeks before the discharge of any inmate, have made, by a trained clinical psychologist, an examination of the mental condition of such inmate, and a permanent record thereof shall be kept in the office of the superintendent, which record shall be open to the inspection of all state boards or commissions authorized by law to investigate or inspect the institution."

Sec. 40. Provides that the superintendent's biennial report shall include data on the "sex, nativity, residence, date of reception, level of intelligence, and the results of the investigations that shall have been made."

Sec. 42. Provides for the sterilization of any inmate before release or discharge, action to be based upon "the recommendation of the superintendent, approved by a clinical psychologist holding the degree of Ph.D. and a physician qualified to serve under section 19 of this act."

The Pacific Colony act was passed by the last California Legislature upon the recommendation of a commission headed by Superintendent Fred. C. Nelles, of Whittier State School. The trustees of the Colony are Mrs. J. Powers Flint of Los Angeles, Dr. Mary Roberts Coolidge of Berkeley, and Senator N. W. Thompson of Alhambra.

Employment of Psychologists

J. M. McCallie, Ph. D.

(From the Trenton *Times*)

Dr. J. M. McCallie, principal of the Franklin School, delivered an address on "Psychology in the Army and in Business," before members of the Rotary to-day at Hildebrecht's. The subject was ably handled and Dr. McCallie's remarks were of a decidedly interesting nature. He said in part:

"Before the war several firms employing a large number of men, secured the services of psychologists to pass upon the general intelligence of would-be employes and their probable fitness for the positions desired.

"The results of their work was so successful that a few psychologists conceived the idea of carrying over into the army, then in the process of formation, the business plan determining the general intelligence of the drafted men and their fitness for commissions and other positions in the army. If ever there was need for such information as the psychologists professed to be able to give, it was during this year and last, when hundreds of thousands of men of every nationality on the face of the earth and every conceivable calling and mental calibre were rushed from all parts of the country to the numerous cantonments to be made at once into a fighting machine that would be more efficient than the most efficient army then on earth.

"No attempt to test the mentality of such colossal numbers had ever before been conceived of. Uncle Sam was 'from Missouri' and had to be shown.

"There were no tests in existence suitable for making such examinations, and there was no money available to pay the expenses of a committee while working out such a set of tests. It was at this time that Joseph Byers, executive secretary of the Committee on the Care of the Feeble-minded of the United States, and formerly our own Commissioner of Charities and Corrections in New Jersey, saw the possibilities and induced his committee to supply the money necessary to defray the expenses, incident to making the first draft of the army tests. The ever alert Training School at Vineland invited the committee to carry on its deliberations at this institution. This generous offer was accepted, and after three weeks deliberation, during which time the committee was in constant consultation with Dr. H. H. Goddard, Director of the Vineland Research Laboratory, the first set of tests for the psychological examination of soldiers was completed and, permission being granted, they were at once tried out in certain cantonments.

"The results more than met the expectations of the psychologists, and, after these tests had been thoroughly tried out, Surgeon General Gorgas, of the S. C., had this to say relative to their efficiency, 'The purpose of these tests is first, (a) To aid in segregating and eliminating the incompetent. (b) To classify men according to mental capacity. (c) To assist in selecting men for responsible positions.

The classification of men according to mental ability as determined by these tests has corresponded in a very striking way with the estimate previously made by officers familiar with them, and men selected for responsible positions solely on their psychological records have fully justified such selections.' And he ordered that these tests be used in classifying all newly enlisted men, and as a result, these tests have been used in classifying more than a million men in our army.

"It is interesting to note that according to these tests as applied to 2,000 officers in Camp Lee, officers of the engineers corps rank the highest, artillery second, then follow infantry, quartermaster and medical officers in the order named. Nurses rank between officers and white enlisted men. The Cornell Aviator School averaged 14 points more than Camp Lee officers. Negro companies rank much lower than the lowest white companies. The mentality of men does not seem to vary between the ages of 21 and 31, but men above 50 show a decreasing score.

"Men were classified according to these tests into seven classes, 412 being a perfect score, which no one ever reached:

"A—Very superior officer type making a score of more than 280, about 5 per cent. of all tested.

"B—Superior—Commissioned officer type—above 230. 10 per cent.

"C plus—High average—non-commissioned officer type—above 190. 55 per cent.

"C—Average—good private type—above 130. 55 per cent.

"C minus—low private type—above 100. 55 per cent.

"D—inferior, unskilled laborer type—above 50. 20 per cent.

"D minus—very inferior, dull laborers or feeble-minded. 10 per cent.

"It is interesting to note that a majority of the cases absent without leave, desertion, confinement to guard house and reduction to rank are found to be below the average of intelligence as shown by these tests.

"The following is an example of the practical working of these tests : A captain was recommended to be reduced in rank because he failed to get results from his company. A superior officer ordered that the company be given psychological tests. This test showed the company to be composed of very inferior men. The captain was transferred to a company with higher intelligence and he made good.

"The success of the psychological tests in the army is bound to have a far-reaching effect in the business world. Psychologists have demonstrated their practicability in the United States Army, the greatest and most complex business ever attempted by man in so short a time. Secretary Baker recently said in an address, 'psychology sounds "highfalutin" and highly bookish and technical, but its work is soundly practical and matter of fact.'

"What the psychologists have done in the army will certainly give a great impetus to similar work in any business where any considerable number of men are employed.

"It is well to remember that these army psychological tests claim to test only general intelligence, and that they do this there cannot be any doubt. The most important element to success in doing anything is general intelligence, and for an employer to know relatively how much general intelligence each one of his employes possess would be of great money value to him.

"The army psychologists, in addition to using general intelligence tests, have been working on several trade tests, some of which, I believe, have been in use for some time and are giving very good results.

"In the light of what has already been done in the army and in the trades in developing general intelligence tests and specific trade tests, I should think that it would pay any concern employing a hundred or more men to employ a psychologist to give intelligence tests and trade test to each new applicant for a position. Or if this would seem too expensive, two or more concerns might unite in employing such a person.

"That such information can be obtained the army psychologists have demonstrated beyond the peradventure of a doubt. The question naturally arises if this knowing the intelligence of his employes would be of great value to the business man, would it not be wise to find out the general intelligence of these employes earlier in life and guide them in such a way that they will not waste years, and sometimes a whole life, in trying to do things that they are incapable of doing. General native intelligence and special abilities are just as potent and as easy or easier of discovery in children before they are old enough to go to work as in later life, so it would seem to be the sensible thing to do to make these tests in school before the child goes out to hunt a job, and while in school the child should be taught those things best suited to his native intelligence and special aptitudes rather than force him through a course of study that fits the average child—a specie that has never yet been discovered."

Insanity and Infected Teeth

Report by Dr. Henry A. Cotton, Medical Director of New Jersey State Hospital at Trenton

(From Bulletin No. 23, New Jersey Department Charities and Corrections)

Epoch-making discoveries announcing a permanent cure for insanity by extracting infected teeth divulged by an X-ray examination, and removing infected tonsils and clearing up the gastro-intestinal infection are set forth in a report based on the results of eleven years of careful, scientific experimentation submitted to-day to the State Board of Charities and Corrections by Dr. Henry A. Cotton, Medical

Director of the New Jersey State Hospital for the Insane at Trenton.

Referring to the results of his experimental work Dr. Cotton states:

> "We are able to cure early cases in a very short time, prevent the disease from becoming chronic in a large number of cases, and restore a certain number who have been in the hospital for as long as nine years. This we are doing daily. We have found that infection of the chronic type and the resulting toxemia are the basis of many mental disturbances. These chronic infections are known as focal infections and may be present for years without their existence becoming known to the patient, and until quite recently the physicians and the dentists have been ignorant of their existence.
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> "We are practically prepared to state that this infection originates in the teeth, as we find the same organism in the absessed teeth, tonsils, stomach and duodeum, and in no cases have we been able to eliminate the teeth as the origin of the infection. It would appear that the infection of the stomach and duodenum was in the wall of these organs and that the organism migrated from the teeth to the lymphatics and in certain fatal cases infected the whole system. We have had five acute maniacal cases who died within a short time after coming to the hospital. Formerly the cause of death was considered due to exhaustion from excitement, but a bacteriological study in these cases showed all the organs practically infected with these organisms. We feel that we have established a very important fact as applicable to general medicine as to nervous and mental diseases, that is, that the infection originates in the teeth and after some years infects their organs through the lymphatic system."

In view of the facts expressed in his fuller report, Dr. Cotton recommends a campaign of education in regard to the care and treatment of the teeth, so that physicians, dentists and the public at large would realize the danger of infected teeth, not only in producing nervous and mental diseases, but in undermining the general health. It has been recognized by most progressive men in medicine for some years that focal infection arising from infected teeth is the cause of many diseases which have heretofore been considered obscure, such as rheumatism, kidney disease, heart disease, etc. But the fact that the gastro-intestinal tract could be infected from abscessed teeth has not been shown before.